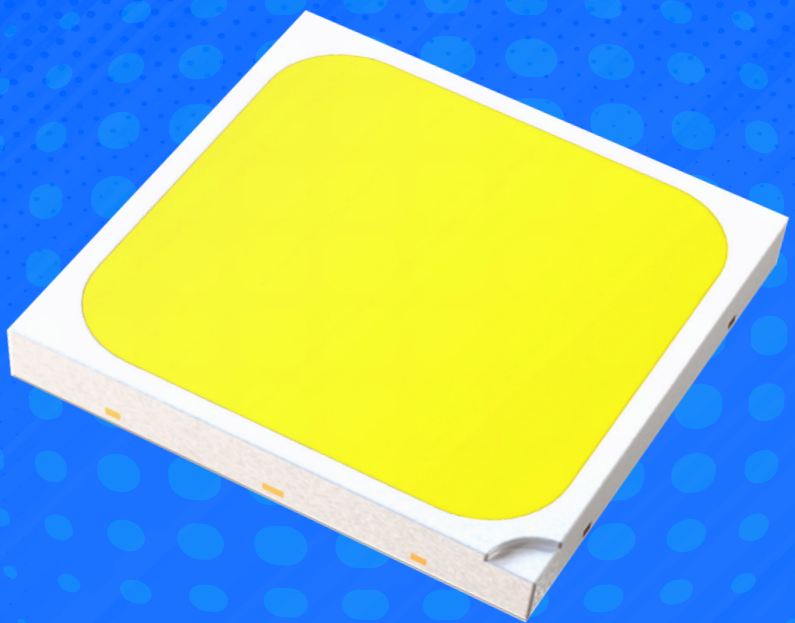
EVERSTAR

The Brightest LED



DATASHEET

ES-P5050-506V-XX-XXX

VER: V1 | 01.26

INTRODUCTION

This 5050 LED Light Source is a high performance energy efficient device which can handle high thermal and high driving current The small package outline and high intensity make it an ideal choice for LED panel light, LED bulb light, LED tube light, backlighting and etc The White Power LED is available in the range of color temperature from 2700K to 6500K. This part has a foot print that is compatible to most of the same size LED in the market today

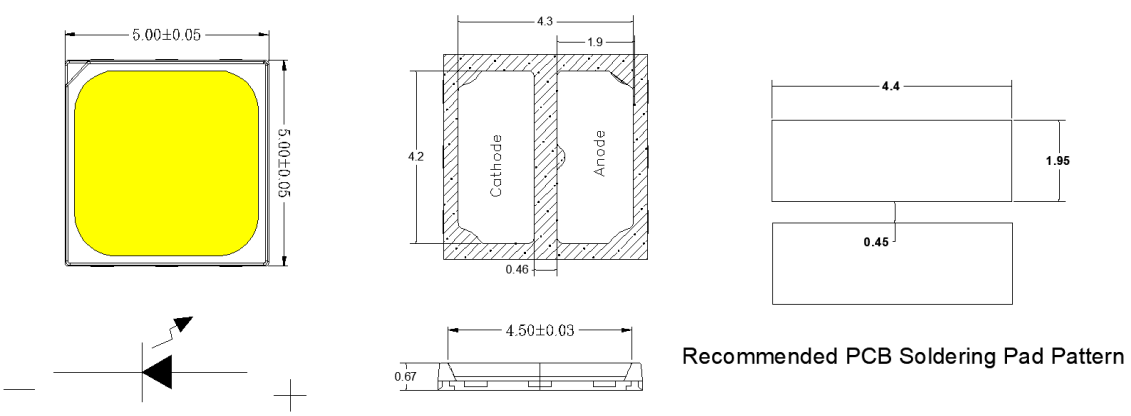
FEATURES

- Available In Cool White, Neutral White And Warm White Color
- ANSI Compatible Chromaticity Bins
- Compatible With Reflow Soldering Process
- Low Thermal Resistance & Long Operational Life
- Wide Viewing Angle At 120˚
- PCT Package
- Environmental Friendly, RoHS Compliance

APPLICATIONS

- Flood Lights
- High Ceiling Lights
- Par Lights
- Indoor Lights

PACKAGE DIMENSIONS



Recommended PCB Soldering Pad Pattern

NOTES:

1. All dimensions in millimeters.
2. Thickness tolerance of copper plate is 0.02mm.
3. Thickness tolerance of product is 0.05mm.
4. Tolerance is 0.1mm unless otherwise noted.

INTRODUCTION

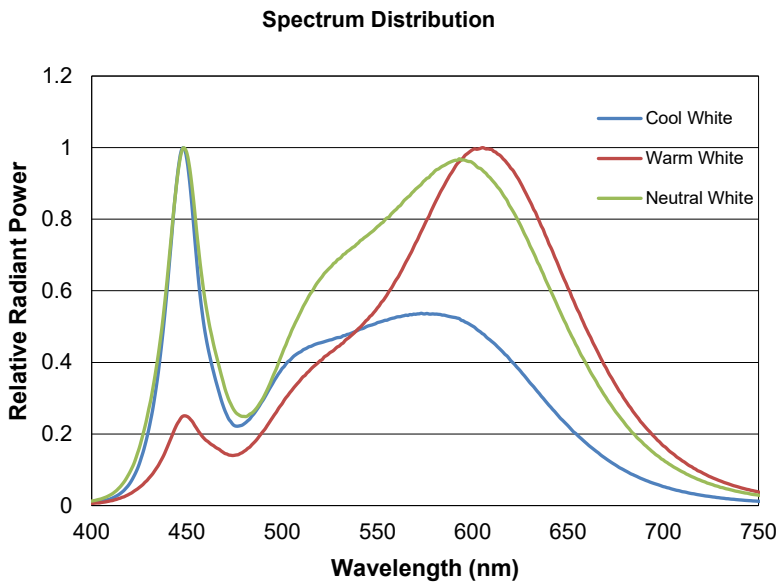
Item	Symbol	Absolute Maximum Rating	Unit
Forward current	I_F	640	mA
Peak Forward Current	I_{FP}	800	mA
Power Dissipation	Pd	4000	mW
Operating Solder Point Temperature	T_{SP}	-40~+105	°C
Storage Temperature	T_{STG}	-40~+105	°C
Soldering Temperature	T_{SLD}	Reflow Soldering: 260 for 10 seconds	
LED Junction Temperature	T_j	125	°C

Note: I_{FP} Conditions: Pulse Width ≦ 10msec. and Duty ≦ 1/10.

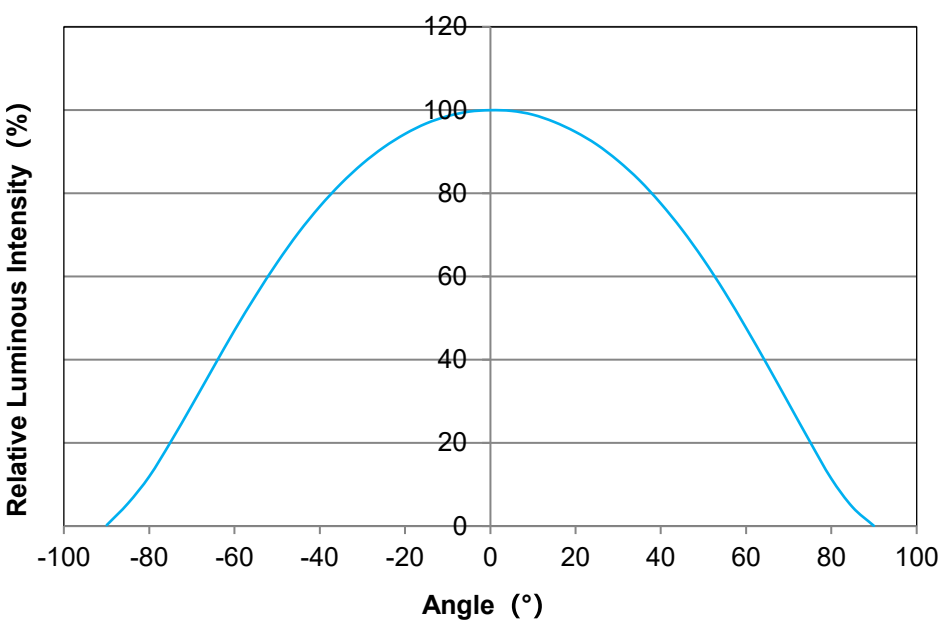
Parameter	Symbol	Condition	Min	Typ	Max	Unit
Forward Voltage	V_F	IF=640mA	5.8	--	6.2	V
Viewing Angle	$2\theta_{1/2}$	IF=640mA	--	120	--	deg.
Luminous Flux	Φv	IF=640mA	630	--	750	lm
Color Rendering Index	CRI	IF=640mA	70	--	--	--
Color Temperature	CCT	IF=640mA	2600	--	7000	K
Thermal Resistance (Junction to Solder Point)	$R_{th\ js}$	IF=640mA	--	5	--	°C/W

Notes:
1. Luminous flux is measured with an accuracy of 5%.
2. Chromaticity coordinate bins are measured with an accuracy of 0.005.
3. CRI is measured with an accuracy of 2 ;
4. Some color and CRI bins may have limited availability, please contact us before ordering.
5. All measurements were made under the standardized environment of Everstar

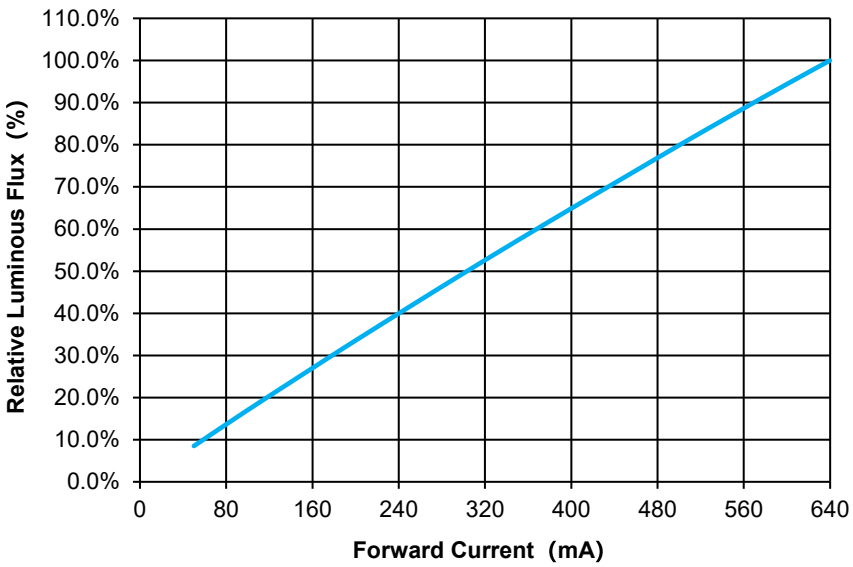
RELATIVE SPECTRAL POWER DISTRIBUTION (Tj =25°C)



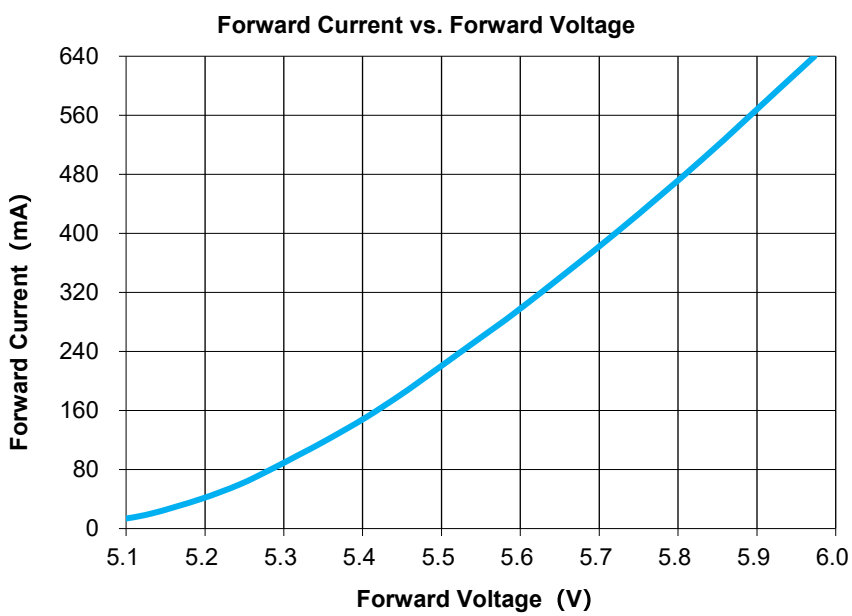
TYPICAL SPATIAL DISTRIBUTION



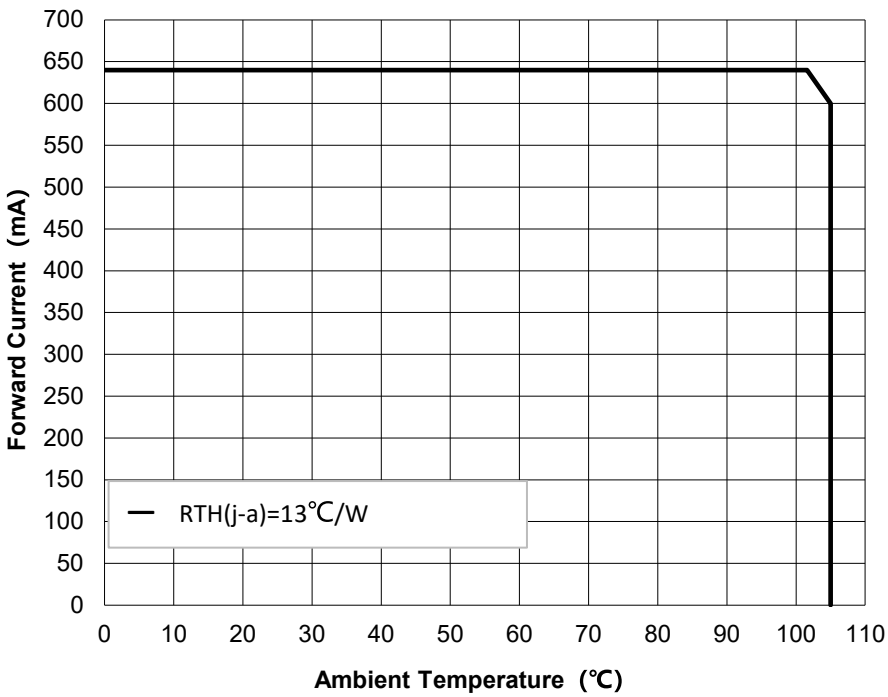
RELATIVE LUMINOUS FLUX VS. CURRENT (Tj =25°C)



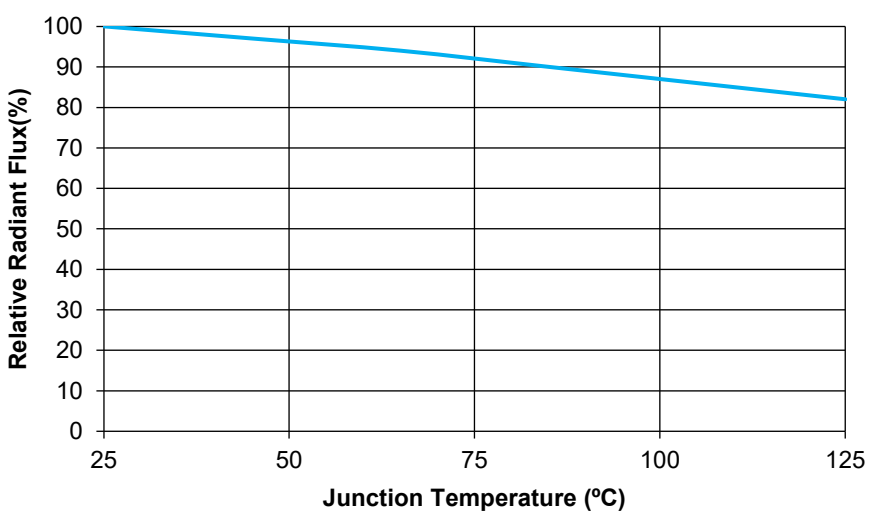
ELECTRICAL CHARACTERISTICS (Tj =25°C)



MAXIUM CURRENT VS. AMBIENT TEMPERATURE



RELATIVE RADIANT FLUX VS. JUNCTION TEMPERATURE



SORTING RANKS

(1) Luminous Flux (Tj =25°C)

Part Number	CCT	Condition	Rank		Unit
ES-P5050-506V-L0-XXX	2700	640mA	V1	V31	lm
			630-680	680-730	
	3000		V3	W0	
			650-700	700-750	
	4000		V3	W0	
			650-700	700-750	
	5000		V3	W0	
			650-700	700-750	
	5700		V3	W0	
			650-700	700-750	
	6500		V3	W0	
			650-700	700-750	

(1) Forward Voltage (Tj =25°C)

Rank	Condition	Min.	Max.	Unit
C9	640mA	5.8	6.0	V
D0		6.0	6.2	

Notes:
1. 10% tolerance for luminous intensity may be caused by measurement inaccuracy.
2. Measurement Uncertainty of the Forward Voltage : ±0.06 V

CHROMACITY BINS

CCT	Part Number	ES-P5050-506V-XX-XXX				
	Bin Code	Color Coordinates(x,y)				
	SDCM	x	y	a	b	Theta°
2700	27-3	0.4578	0.4101	0.00810	0.0042	53.7000
	27-5			0.01350	0.0070	
3000	30-3	0.4338	0.403	0.00834	0.00408	53.2200
	30-5			0.0139	0.0068	
4000	40-3	0.3818	0.3797	0.00939	0.00402	53.2200
	40-5			0.01565	0.0067	
5000	50-3	0.3447	0.3553	0.00822	0.00354	59.62
	50-5			0.0137	0.0059	
5700	57-3	0.3287	0.3417	0.00746	0.00312	59.09
	57-5			0.01243	0.00533	
6500	65-3	0.3123	0.3282	0.00669	0.00285	58.57
	65-5			0.01115	0.00475	

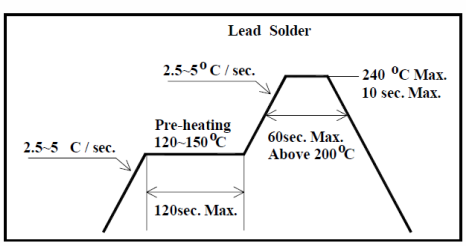
FOR REFLOW PROCESS

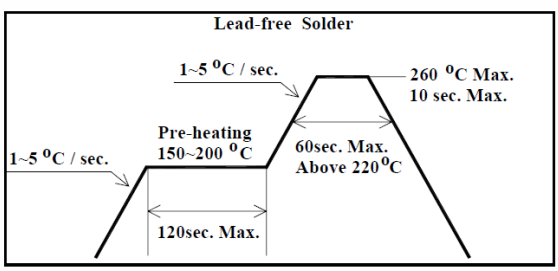
Preheating : 140°C~160°C±5°C,within 2 minutes.

Operation heating : 260°C(Max.) within 10 seconds.(Max)

Gradual Cooling (Avoid quenching).

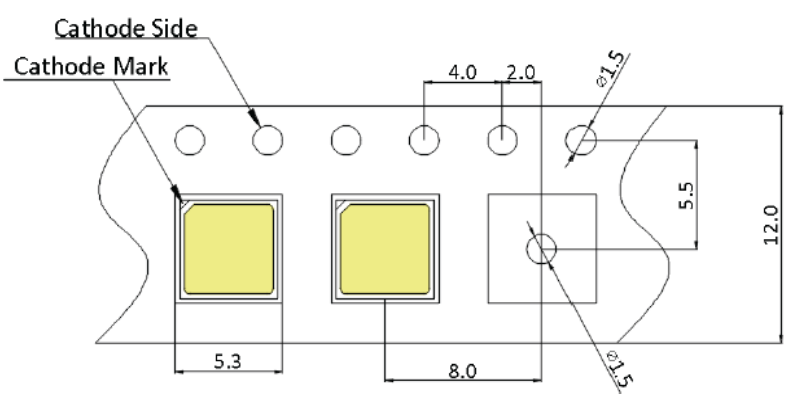
Lead solder		Lead-free solder	
Pre-heat	120-150°C	Pre-heat	150-200°C
Pre-heat time	120 sec.Max.	-heat time	120 sec.Max.
Peak Temperature	240°C Max.	Peak Temperature	260°C Max.
Soldering time condition	10 sec.Max.	Soldering time condition	10 sec.Max.

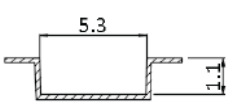




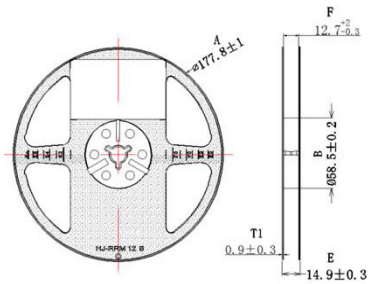
Notes:
The encapsulated material of the LEDs is silicone . Therefore the LEDs have a soft surface on the top of package. The pressure to the top surface will be influence to the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when using the picking up nozzle, the pressure on the silicone resin should be proper.

TAPE AND REEL

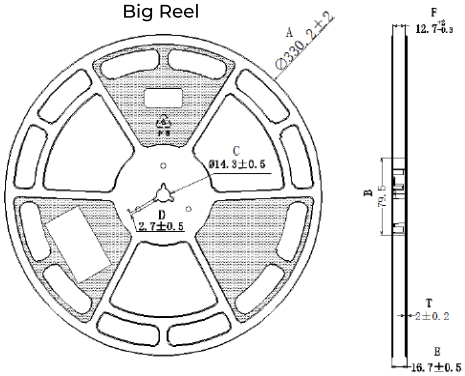




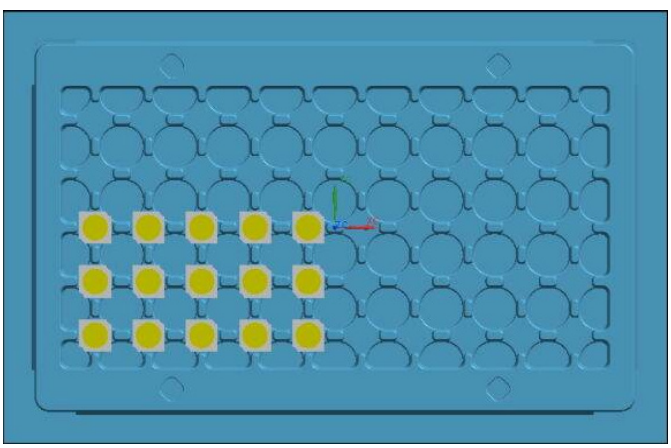
Small Reel



Big Reel



PACKAGING



120PCS

LABEL

EVERSTAR
The Brightest LED

RoHS

Model No.

Lot no. **Qty :**

VF (v)	IV (lm)	IF (mA)	CCT (K)	Ra
Part Code :				

RELIABILITY TESTS AND RESULTS

Test Items	Test Duration	Number of Damaged
Steady State Operating Life of High Temperature (HTOL) Ts=85℃, IF=Max	1000hrs	0/20
Steady State Operating Life of Low Temperature (LTOL) Ta=-40℃, IF=Max	1000hrs	0/20
High Temperature Storage (HTS) 100℃	1000hrs	0/20
Low Temperature Storage (LTS) -40℃	1000hrs	0/20
Thermal Shock (TS) -45℃~125℃ 15min dwell 30sec transfer	100cycles	0/20
Solder Resistance (SR) 265℃, 3X MSL	5sec	0/20
Solder Ability (SA) 245℃5sec, 95% coverage	5sec	0/11

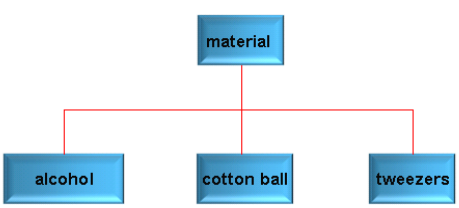
USING & ATTENTION

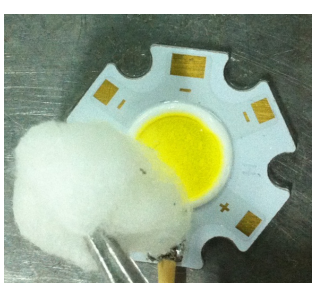
Soldering:

COB light source device is a very fragile encapsulation device. Careless in the process of soldering operation will cause the damage of the products easily and even lead to death lamp. client should be cautious. In the process of soldering iron or other welding equipment to heat up, please don't use hand or other items to put any pressure on the surface of a product, please avoid iron touch within white rubber dam. because under the white dam it is likely to be the gold thread connection with substrate.If it is extruded by any external things,it is likely cause that connections between gold wire and substrate loose or fall off leading to product stroboscopic at work or death lamp. soldering temperature shall not be higher than 350 and the time shall not be more than 3 seconds and the number less than 2 times. When the soldering operation is completed , it is necessary that the product is cooled to room temperature, then washed again, and other operations.

Cleaning:

After soldering it is recommended that client should use alcohol to clean, The specific method is that using tweezers clamping alcohol cotton ball in the source surface lightly wipe back and forth to clean, Prohibit the forceps tip injury to the source surface .Before using other similar solvent cleaning, please make sure that to use the solvent will not damage the product packaging materials such as silica gel and phosphor etc.





Storage:

This product use sealed moisture-proof anti-static bag packaging, storage method is as follows:

1. Opened before, the product must be stored in room temperature and humidity environment is not higher than 70% RH.
2. Once opened, the product can be stored in room temperature and humidity is not higher than 70% RH of the environment in a week, please use in the period of time.

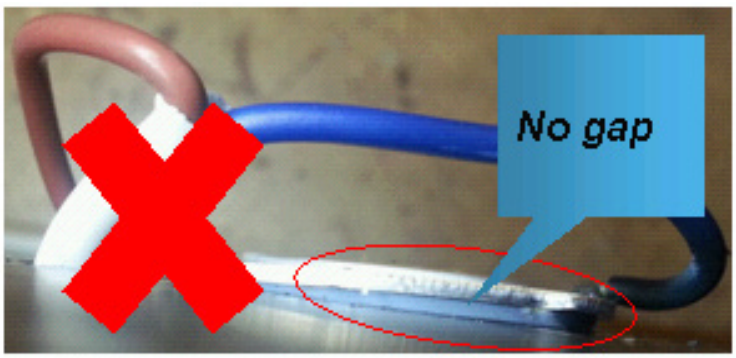
If not timely installation after opening, Should be stored in dry cabinet temperature and humidity not higher than 10%RH.

Static Electricity:

Static and surge can cause product characteristics change, such as forward voltage to reduce, if severe cases may even damage the product. So When in use effective anti-static measures must be taken. All related equipment and machines should be properly grounded, at the same time must take other measures to prevent static and surge. Use anti-static bracelet, anti-static MATS, anti-static overalls, work shoes, gloves, anti-static container, are effective measures to prevent static and surge.

Driving & Cooling Scheme:

In the design of driving, by the current cannot exceed a maximum value specified products. Over voltage, over current pulses generated at the moment of the power switch or reverse voltage pulse may cause product damage and even death light. Therefore it is recommended that choose drive power selection of high stability. Because the heat this for product is concentrated, It should be the choice of high thermal conductivity thermal grease or conductive adhesive and Evenly coated on the light back. There can be no gap between substrate and radiator.



Halogen:

Halogen will damage the product, affecting device performance. Reference standards such as IEC, IPC and JPCA - ES, customers to use material, each kind of halogen content shall not be higher than 900 PPM, halogen sum shall not be higher than 1500 PPM.

1. Halogen include: F, Cl, Br, I
2. Common containing halogen material: white oil, pouring sealant, sealant, line insulation casing, etc.

External Force:

Packaging adhesive products (including the white dam colloid) is fragile ,
when in use should pay attention to the following points:

1. Do not use hard, sharp objects scratch, wipe the packaging adhesive part.
2. Do not hand take products, avoid pollution package silica surface, and influence its optical properties.
3. It should be noted that when using tweezers clip excessive pressure may damage , packaging silica gel , for example, damage, scratches, peeling, serious deformation and die lamp.
4. Products dropped, the product may lead to deformation.